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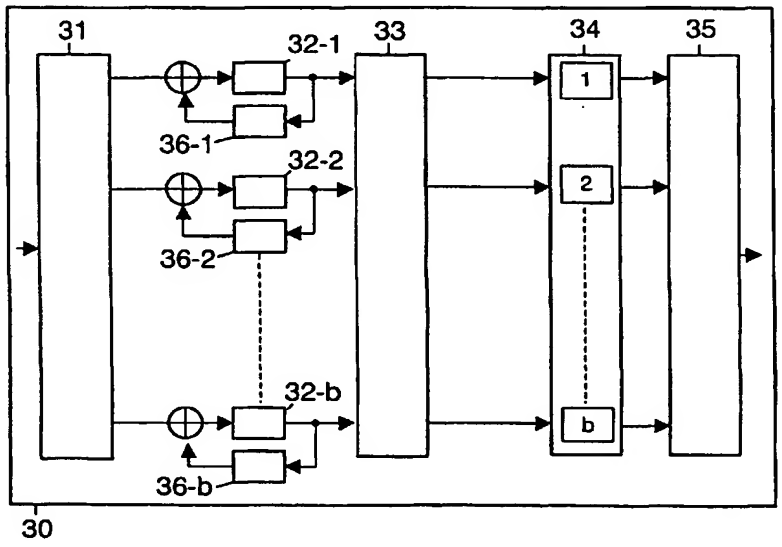
(54) Title: FILTERBANK MODULATION SYSTEM WITH PRE-EQUALIZATION




(57) Abstract: Filterbank-based modulation systems comprise sender-processors (20,30) with inverse-fast-fourier-transformating-modules (23,33) and filtering-modules (24,34) and comprise receiver-processors (40) with fast-fourier-transformating-modules (43). Interference caused by said filtering-modules (24,34) is reduced by, in said sender-processors (20,30), introducing coding-modules (22,32) with further-filtering-modules (26,36) in feedback loops, and by, in said receiver-processors (40), introducing decoding-modules (44). Splitting-modules (21,31,41) and combining-modules (25,35,45) allow the use of signal streams and parallel filterbanks. Coding-modules (22 resp. 32) comprise sub-coding-modules (22-1,22-2,....,22-a or 32-1,32-2,....,32-b), filtering-modules (24 resp. 34) comprise sub-filtering-modules (24-1,24-2,....,24-a or 34-1,34-2,....,34-b), further-filtering-modules (26 resp. 36) comprise sub-further-filtering-modules (26-1,26-2,....,26-a or 36-1,36-2,....,36-b), and decoding-modules (44) comprise sub-decoding-modules (44-1,44-2,....,44-c), all per signal stream. The sub-further-filtering-modules either receive input signals from outputs of said inverse-fast-fourier-transformating-modules and supply output signals via fast-fourier-transformating-modules to inputs of said sub-coding-modules via adding/subtracting-modules for reducing interference per signal stream (or per subcarrier/subband), or receive input signals from outputs of said sub-coding-modules and supply output signal to inputs of said sub-coding-modules via adding/subtracting-modules for reducing interference per signal stream (or per subcarrier/subband) as well as between signal streams (or between subcarriers/subbands) and introducing so-called fractionally spaced filterbank-based modulation systems.

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